

South Carolina Grid Improvement Plan Report  
Duke Energy Progress  
Capital Expenditures 2019 - 2021

Program	Cumulative Target	Units	Cumulative Actuals	Units	Cumulative Variance	Units	Program Notes
1 Self Optimizing Grid	\$ 30,980,962		\$ 26,074,515		\$ (4,906,447)		
Segmentation and Automation	\$ 9,620,962	132	\$ 12,277,445	191	\$ 2,656,483	59	Program executed more work at lower unit cost.
Modular Distrib Control Device POC	\$ -		\$ -		\$ -		
Capacity & Connectivity	\$ 10,985,000	38	\$ 9,896,957	43	\$ (1,088,043)	5	Program executed more work for less cost than anticipated.
Substation Bank Capacity	\$ 7,544,000		\$ 143,773		\$ (7,400,227)		Program required less substation capacity work to support Self-Optimizing Grid.
Advanced DMS	\$ 2,831,000		\$ 3,756,339		\$ 925,339		Program took longer than anticipated to deliver expected functionality.
2 Distribution Hardening & Resiliency - Flood	\$ -		\$ -		\$ -		
3 Distribution Transformer Retrofit	\$ 22,996,000	19,163	\$ 24,582,803	21,077	\$ 1,586,803	1,914	Program executed as anticipated.
4 Distributed System Demand Response	\$ 2,000,000		\$ 1,614		\$ (1,998,386)		Program is in the planning and design stage.
5 Transmission Hardening & Resiliency	\$ 7,350,000		\$ 2,680,758		\$ (4,669,242)		Program did not include as much line rebuild work as anticipated.
6 Transmission Bank Replacement	\$ 2,875,000		\$ 1,950,949		\$ (924,051)		Timing of project development led to program schedule shift.
7 Transmission System Intelligence	\$ 5,146,250		\$ 2,645,714		\$ (2,500,536)		Program work decreased for some projects in this program, and some work was executed in the oil breaker replacement program.
8 Oil Breaker Replacement	\$ 1,455,000		\$ 8,682,962		\$ 7,227,962		Program executed more work to the achieve reliability and environmental improvements for customers. Some system intelligence work was also included in this program.
Distribution Breaker Replacement	\$ 506,000		\$ 5,265,884		\$ 4,759,884		
Transmission Breaker Replacement	\$ 949,000		\$ 3,417,078		\$ 2,468,078		
9 Targeted Undergrounding	\$ 7,825,000	18	\$ 10,504,629	7.4	\$ 2,679,629	(10.6)	Costs are higher than plan. Actuals reflect unique nature of each neighborhood project tailored to specific property needs including easement acquisition, engineering, interferences, location, terrain, etc.
10 Long Duration Interruptions	\$ 9,873,000		\$ 13,181,878		\$ 3,308,878		Program experienced challenging storm and flood conditions while also executing more work than anticipated due to accelerating schedule to provide significant customer reliability improvements.
11 Enterprise Communications	\$ 15,733,705		\$ 7,812,650		\$ (7,921,055)		
Next Generation Cellular	\$ 592,139	529	\$ 279,276	491	\$ (312,863)	(38)	Program executed less work than anticipated at less than anticipated cost.
Mission Critical Voice	\$ 2,470,575		\$ 635,233		\$ (1,835,342)		Program delayed for additional planning and design.
BizWAN	\$ 82,344		\$ 10,560		\$ (71,784)		This work was combined with networking efforts under our Telecommunications program and removed from the SC GIP.
GridWAN	\$ 4,116,531	27	\$ 1,481,138	44	\$ (2,635,393)	17	Program executed at less than anticipated cost.
Mission Critical Transport	\$ 5,141,260	31	\$ 3,705,698	39	\$ (1,435,562)	8	Program executed more work than anticipated including fiber miles and microwave sites.
Towers Shelters Power Support	\$ 2,906,957	3	\$ 1,424,717	-	\$ (1,482,240)	(3)	Program contained less tower and shelter site work than anticipated in plan.
Network Asset System Tools	\$ 92,339		\$ 53,015		\$ (39,324)		Program delayed for additional planning and design.
Vehicle Area Network	\$ 331,560	783	\$ 223,013	359	\$ (108,547)	(424)	Telematics portion of the VAN program completed available units. Wifi portion was delayed to evaluate technology options.
12 Distribution Automation	\$ 6,468,000		\$ 5,849,860		\$ (618,140)		
Hydraulic to Electric Recloser	\$ 4,283,000	68	\$ 3,776,612	80	\$ (506,388)	12	Program executed more work for less cost.
System Intelligence & Monitoring	\$ 345,000		\$ 9,701		\$ (335,299)		Program is delayed due to additional scoping and design, and schedule is dependent on completion of prescale work.
Fuse Replacement w/ Reclosers	\$ 1,150,000	290	\$ 2,063,547	238	\$ 913,547	(52)	Program work was reduced due to higher than anticipated unit cost.
Underground System Automation	\$ 690,000	-	\$ -		\$ (690,000)		Program work was not identified after further planning and review.
13 Enterprise Applications	\$ 2,109,200		\$ 835,844		\$ (1,273,356)		Program contained less work than anticipated.
Integrated Tools for Outage Apps	\$ 107,200		\$ 126,695		\$ 19,495		
TUG System Software Tools	\$ 12,000		\$ 24,438		\$ 12,438		
Health Risk Management	\$ 260,000		\$ 357,948		\$ 97,948		
Enterprise Distribution System Health	\$ 7,000		\$ 24,465		\$ 17,465		
Other Initiatives	\$ 1,723,000		\$ 302,299		\$ (1,420,701)		
14 Integrated System Operations Planning	\$ 1,446,000		\$ 350,275		\$ (1,095,725)	-76%	Program was completed at less than anticipated cost.
15 DER Dispatch Enterprise Tool	\$ 874,000		\$ 24,717		\$ (849,283)		Program delayed for additional planning and design.
16 Power Electronics for Volt/Var	\$ 481,000		\$ 366,372		\$ (114,628)		Program was delayed due to planning and technical challenges. Installation anticipated to begin in 2022.

17	Physical and Cyber Security - Transmission	\$ 14,711,750	\$ 2,991,528	\$ (11,720,222)	Program contained less cyber security work than anticipated, and physical security work timing was adjusted to prioritize reliability projects.
18	Physical and Cyber Security - Distribution	\$ 2,346,804	\$ 988,370	\$ (1,358,434)	
	Device Entry Alert System	\$ 67,051	\$ 15,234	\$ (51,817)	Program cancelled to prioritize work that provides evolving risk reduction.
	Secure Access Device Management	\$ 256,512	\$ 295,854	\$ 39,342	Program executed as anticipated.
	Line Device Protection	\$ 2,023,241 421	\$ 677,282 262	\$ (1,345,959) (159)	Program contained less work than was in the plan.
Distribution Total		\$ 103,133,671	\$ 90,573,527	\$ (12,560,144)	
Transmission Total		\$ 31,538,000	\$ 18,951,910	\$ (12,586,090)	
<b>Total Grid Improvement Plan</b>		<b>\$ 134,671,671</b>	<b>\$ 109,525,437</b>	<b>\$ (25,146,234)</b>	

## Notes:

1. The Communications Mission Critical Transport program installed 33 miles of fiber and six microwave sites. The Tower Shelter Power Supplies program installed four power supply sites.
2. The GIP deferral does not include Energy Storage and Electric Vehicle work that was included in the original Grid Improvement Plan.